

Claims

We claim:

1. A skid steer vehicle having a longitudinally extending axis, a left side, a right side, a front end and a rear end, the vehicle comprising:

a chassis;

an engine supported by the chassis;

a plurality of hydraulic pumps coupled to and driven by the engine, the plurality of pumps including a left side drive pump, a right side drive pump and a steering pump;

at least one left side hydraulic drive motor and at least one right side hydraulic drive motor coupled to the left side and the right side hydraulic drive pumps, respectively; and

four vehicle suspensions, said suspensions being disposed at the left front, the right front, the left rear and the right rear of the vehicle, wherein each suspension includes a control arm pivotally coupled to the chassis to pivot with respect to the chassis about a longitudinally extending axis, a spring for supporting the vehicle; a strut coupled to the control arm, and a wheel coupled to the strut to be steered thereby,

wherein the left side drive motor is drivingly coupled to the two wheels of the left front and the left rear suspensions and wherein the right side drive motor is drivingly coupled to the two wheels of the right front and the right rear suspensions.

2. The skid steer vehicle of claim 1, wherein the control arms pivot about horizontal axes.

3. The skid steer vehicle of claim 2, wherein the control arm of each suspension is coupled to the chassis of the vehicle at two points, including a first point disposed forward of the strut of said each suspension and a second point disposed rearward of the strut of said each suspension.
4. The skid steer vehicle of claim 2, the vehicle further comprising first chain links coupled to the at least one left side drive motor and the wheels of the left front and the left rear suspensions.
5. The skid steer vehicle of claim 4, the vehicle further comprising second chain links coupled to the at least one right side drive motor and the wheels of the right front and the right rear suspensions.
6. The skid steer vehicle of claim 5, wherein the control arms of the four suspensions extend laterally away from the vehicle, the two left side suspension control arms extending leftwardly and laterally away from the left side of the chassis, and the two right side control arms extending rightwardly and laterally away from the right side of the chassis.
7. The skid steer vehicle of claim 6, wherein the left side of the chassis includes a generally vertically and longitudinally extending left side wall and wherein the right side of the chassis includes a generally vertically and horizontally extending right side wall, and further wherein the left front and left rear suspension control arms are mounted adjacent to the left sidewall and the right front and right rear suspensions are mounted adjacent to the right sidewall.
8. A skid steer vehicle having a longitudinally extending axis, a left side, a right side, a front end and a rear end, the vehicle comprising:

a chassis;

a power source supported on the chassis;

a plurality of hydraulic pumps coupled to and driven by the power source, the plurality of pumps including a variable displacement left side drive pump, a variable displacement right side drive pump and a steering pump;

at least one left side hydraulic drive motor and at least one right side hydraulic drive motor coupled to the left side and the right side hydraulic drive pumps, respectively; and

at least four vehicle suspensions, said suspensions being disposed at the left front, the right front, the left rear and the right rear of the vehicle, wherein each of said at least four suspensions includes a laterally-extending control arm attached to the chassis to pivot about a longitudinal axis, a spring, a strut coupled to the control arm, and a wheel drivingly coupled to one of the left side drive motor and the right side drive motor.

9. The skid steer vehicle of claim 8, wherein the left side drive motor is drivingly coupled to the wheels of the left front and the left rear suspensions, and wherein the right side drive motor is drivingly coupled to the wheels of the right front and the right rear suspensions.

10. The skid steer vehicle of claim 9, wherein the control arms of all four suspensions pivot about horizontal axes.

11. The skid steer vehicle of claim 10, wherein the control arm of each suspension is coupled to the chassis of the vehicle at a first point disposed forward of the strut of said each suspension and a second point disposed rearward of the strut of said each suspension.

12. The skid steer vehicle of claim 11, the vehicle further comprising first chain links coupled to the at least one left side drive motor and the wheels of the left front and the left rear suspensions.

13. The skid steer vehicle of claim 12, the vehicle further comprising second chain links coupled to the at least one right side drive motor and the wheels of the right front and the right rear suspensions.

14. The skid steer vehicle of claim 13, wherein the two left side suspension control arms extend leftwardly away from the left side of the chassis, and the two right side control arms extend rightwardly away from the right side of the chassis.

15. The skid steer vehicle of claim 14, wherein the left side of the chassis includes a generally vertically and longitudinally extending left side wall and wherein the right side of the chassis includes a generally vertically and horizontally extending right side wall, said left and right sidewalls extending substantially the entire length of the chassis

16. The skid steer vehicle of claim 15, wherein the left front and left rear suspension control arms are mounted to the left sidewall and wherein the right front and right rear suspensions are mounted to the right sidewall.

17. The skid steer vehicle of claim 8, further comprising steering actuators coupled to the four wheels and the steering pump, the actuators being configured to simultaneously steer the front wheels to the left and the rear wheels to the right, and to simultaneously steer the front wheels to the right and the rear wheels to the left.

18. The skid steer vehicle of claim 17, further comprising at least one hydraulic valve in fluid communication with the steering pump and the steering actuators to control the flow of fluid therebetween.